

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Discussion of Claim Amendments

By way of the amendment instructions above, independent claims 15 and 16 have each been revised so as to emphasize that the photoresist compositions comprises (a) about 50 to about 99.5 wt% of a binder, (b) about 0 to about 10 wt.% of a photoactive component, and (c) about 0.5 to about 50 wt.% of a fluor containing compound relative to the total of (a)+(b)+(c). Support for such amendments can be found in the originally filed specification at page 7, lines 18-21. That the fluor containing compound is the dissolution inhibitor can be found at page 6, lines 6-8.

New claims 33-36 depend ultimately from either claim 15 or 16 and define the ranges of the fluor containing compound (dissolution inhibitor) disclosed on page 7, lines 26-28.

Therefore, following entry of this amendment, claims 15-36 will remain pending herein for which favorable consideration is solicited.

2. Response to 35 USC §103(a) Rejections

The prior pending claims have attracted a variety of rejections based principally on Bae et al (US 2004/0038150). Specifically, claims 15-16, 20-24 and 27-32 attracted a rejection under 35 USC §103(a) based on Bae et al in view of Suwa et al (USP 6,191,429), while claims 15, 17 and 19 attracted a rejection under the same statutory provision and references, and further in view of Houlihan et al (USP 5,998,099). Finally, claims 16, 18 and 25-26 were rejected under 35 USC §103(a) as allegedly being unpatentable under 35 USC §103(a) based on Bae et al, in view of Suwa et al and further in view of Berger et al (US 2004/0033436). As will become evident from the

following discussions, the rejections advanced against the prior pending claims are now inappropriate and should therefore be withdrawn.

At the outset, applicants note that the Examiner appears to rely on Example 7 of Bae et al as disclosing a binder (resin), a photoactive compound (photo acid generator) and a fluor containing compound (R08 surfactant. Applicants further note that the description of "R08" as the surfactant does not arguably provide sufficiently clear disclosure to anticipate a fluor containing compound, with the Examiner appearing to assume that the R08 surfactant is a product sourced from Dainippon which is indeed a fluor containing compound. In any event, applicants agree with the Examiner that Bae et al does not teach a process used to form an etched layer in a chip using immersion lithography techniques.

Against the background above, assuming that it is accepted for the sake of argument that the disclosure of "R08" in Bae et al is in fact a disclosure of a fluor containing compound, then the present claim amendments noted above clearly distinguish the present invention over Bae et al.

In this regard, it will be noted that the problem solved by the present invention is to prevent the extraction of photoresistant components by the immersion fluid (liquid) without the need of applying an extra top layer. (See page 11, lines 23-29 of the originally filed specification.) The solution to this problem is achieved by the presently claimed invention through the formulation of an "in-situ" top coat layer or a composition containing a self-segregating material which migrates to the surface to form the top coat. For the Examiner's convenience and consideration, there is attached hereto a recent article from IBM which discusses the generally technology in further detail.¹

¹ The attached IBM article is also listed on an appropriate form PTO/SB/08a.

With regard, to the “R08” product, the Examiner’s attention is directed to the Dainippon web site at <http://www.dic.co.jp/en/products/fluoro/additive/appli.html> where it is disclosed that use of R08 as a leveling agent is in amounts between 0.05 and 0.5 wt.% relative to total solids content.²

The amount of fluorinated surfactant disclosed in Bae et al is 0.1 wt.%, which is 5 times lower than the minimum amount disclosed in the present invention. AT such a low proportion, the fluorinated surfactant would be ineffective as a self-segregating top layer, as it would not provide sufficient coverage of the top surface to protect the body of the photoresist from extraction by the immersion liquid.

The disclosure of the fluor containing compound (R08) in Bae et al is limited to Example 7. No other disclosure in Bae et al is present, let alone a teaching in Bae et al to direct the person of ordinary skill to apply R08 in any amount other than 0.1 wt.% relative to the total solid content. And, even if an ordinarily skilled person were to consult the technical data for applications of R08 on the Dainippon web site, it would be emphasized that it would only be used at an amount up to 0.5 wt.% relative to total solids content. Thus, an ordinarily skilled person would not be motivated to use any fluor-containing compound at amounts up to 50 wt.% as is defined in the pending claims herein.

The secondary references to Suwa et al, Houlihan et al and Berger et al fail to cure the deficiencies of Bae et al noted above. Therefore, withdrawal of the rejections advanced under 35 USC §103(a) based on the pending claims herein is in order.

² A screen print of the Dainippon web site where its R08 product is disclosed as a leveling agent in such amounts is also attached.

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3. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: /Bryan H. Davidson/
Bryan H. Davidson
Reg. No. 30,251

BHD:dlb
901 North Glebe Road, 11th Floor
Arlington, VA 22203-1808
Telephone: (703) 816-4000
Facsimile: (703) 816-4100